



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



DAN WYANT
DIRECTOR

March 28, 2011

Ms. Kristen Mariuzza
Kennecott Eagle Land LLC
(sent electronically to: Kristen.mariuzza@riotinto.com)

SUBJECT: **MIR111690 Kennecott-Humboldt Mill NOC**
Authorization to discharge Storm Water from Construction Activities under the National Pollutant Discharge Elimination System (NPDES).

This is to acknowledge that the Department of Environmental Quality (Department) received your administratively complete application. On **March 9, 2011**, you became authorized, under NPDES, to discharge storm water from your construction activities at **Kennecott Eagle Land - Humboldt Mill**. The NPDES number for this site is **MIR111690**. Please refer to this number in all future correspondence with the Department concerning this permit.

PLEASE NOTE: The authorization to discharge storm water pursuant to the provisions of Michigan's Permit-by-Rule expires on **December 31, 2011**. **Notice of Coverage (NOC) authorization may be extended or modified prior to expiration by submitting a Notice of Coverage Renewal form along with a copy of the renewed and/or extended SESC permit to the Department by mail or by e-mail to: ploehnk@michigan.gov**. If this authorization expires, a new administratively complete NOC (including the fee) must be submitted to obtain storm water authorization.

Please be advised that the authorization to discharge requires that the soil erosion and sedimentation controls be under the supervision of a state certified storm water operator. A copy of Michigan's Permit-by-Rule can be found on the Department Web site at www.michigan.gov/deq, click on "Water" (left hand side), then click on "Surface Water," and then click on "Storm Water." These requirements must be followed during the entire period of your storm water discharge authorization.

The issuance of this permit does not authorize the violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any other Department permits, or approvals from other units of government as may be required by law.

A Notice of Termination (NOT) must be submitted to the Department once the construction site is completely stabilized. A copy of the NOT form can also be accessed at the website indicated above.

If you have any questions about your authorization to discharge storm water, please contact Mark Fife at 517-241-8993.

Sincerely,

Mike Bitondo, Acting Chief
Lakes Michigan & Superior Permits Unit
Permits Section
Water Resources Division

cc: Marquette CD-CEA (electronic)



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU

NOTICE OF COVERAGE

FOR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITY

By Authority of R 323.2190 promulgated under Part 31 of Act 451, Public Acts of 1994, as amended
Failure to comply with the terms and provisions of R 323.2190 may result in fines up to \$25,000
per day and the possibility of imprisonment.

FOR DEQ USE ONLY	
NPDES Number	
MIR111690 ^(E)	
Receipt No.:	
11-15034	
Permit Id:	
91545	

Filing of this Notice of Coverage (NOC) with the Michigan Department of Environmental Quality (MDEQ) is required before initiation of construction activities **that disturb 5 acres or more of land or is part of a larger common plan of development or sale** that requires a national permit pursuant to the provisions of 40 CFR Section 122.26(a). This constitutes notice that the construction permittee is authorized under R 323.2190 to discharge storm water associated with the construction activities. The construction permittee must be the land owner or the recorded easement holder of the property where the construction activity is located.

INSTRUCTIONS AND FEE INFORMATION: Soil Erosion and Sedimentation Control (SESC) coverage is required under Part 91, SESC, of Act 451 before submitting this NOC. The construction permittee will be deemed to have an NPDES permit for storm water discharges from a construction site when the MDEQ receives the completed NOC, **a copy of the appropriate SESC permit, a copy of the approved SESC Plan, a site map and the \$400 fee.** These must be received before construction begins. **This authorization to discharge construction storm water will expire** on the same day as the SESC permit originally submitted to the MDEQ with this package. The expiration date will be specified in the NOC acknowledgement letter provided by the MDEQ (please make sure you receive the NOC acknowledgement letter). NOC Authorization to discharge storm water may be extended (up to five years after original issuance date) by submitting a NOC Renewal form and a copy of the revised or extended SESC permit to the MDEQ **prior** to the NOC expiration. If the SESC permit number changes, expires, is revoked or terminated, prior to the complete stabilization of the site, a **new** administratively complete NOC and all the requirements, including the fee must be submitted to obtain storm water authorization.

PERMIT BY RULE REQUIREMENTS: The permittee must abide by the requirements of R 323.2190 which states in part: (a) Not directly or indirectly discharge waste materials into the waters of the state in violation of Part 31, Water Resources Protection, of the Act or rules promulgated there under; (b) Be in compliance with a soil erosion and sedimentation control permit for the site; (c) Properly maintain and operate the soil erosion control measures; (d) Have the soil erosion control measures under the specific supervision and control of a storm water operator who has been certified by the Department; (e) Cause the construction activity to be inspected by a certified storm water operator once per week, and within 24 hours after every precipitation event that results in a discharge from the site. Refer to R 323.2190 for the complete listing of requirements at: http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3716-23997--,00.html.

CONSTRUCTION PERMITTEE INFORMATION (Landowner, Easement Holder, or Authorized Public Agency)					
LANDOWNER/PERMITTEE Kennecott Eagle Land, LLC.			AGENT FOR LANDOWNER (OPTIONAL)		
CONTACT PERSON (FIRST AND LAST NAME) Kristen Mariuzza			CONTACT PERSON (FIRST AND LAST NAME)		
E-MAIL ADDRESS (OPTIONAL FOR FASTER SERVICE) Kristen.Mariuzza@riotinto.com			E-MAIL ADDRESS		
MAILING ADDRESS 504			MAILING ADDRESS		
STREET Spruce Street			STREET		
CITY Ishpeming	STATE MI	ZIP 49849	CITY	STATE	ZIP
STORM WATER CERTIFIED OPERATOR (CONSTRUCTION ONLY)			For Cashier's Office Only: 37000-40512-9091-481001-01		
CERTIFIED OPERATOR Mary Morissette			<div>RECEIVED MAR 09 2011 By _____</div> <div>116297.1</div> <div>SW1 584302-3-1 2011/11 60000 41270 8061 48100101 AT 2011 2400</div>		
CERTIFICATION NUMBER 14432					

MDEQ UP DISTRICT OFFICE

SITE DESCRIPTION				
TOTAL ACRES OF SITE 25.6		ACRES OF DISTURBANCE 14		RECEIVING WATERS West Branch Black River
PROJECT INFORMATION				
PROJECT NAME Kennecott Eagle Land - Humboldt Mill			COUNTY Marquette	TOWNSHIP Humboldt
STREET 4547 CR 601			1/4 1/4 11 SECTION	
CITY	STATE Michigan	ZIP	TOWN (T) 47N	RANGE (R) 29W
PART 91 SESC PERMITTING ENTITY INFORMATION				
NAME OF PART 91 SESC PERMITTING ENTITY OR APA AGENCY Marquette County Conservation District				
E-MAIL ADDRESS (OPTIONAL FOR FASTER SERVICE) hampton-waring@macd.org			PHONE NUMBER 906-226-2461	
ADDRESS 780 Commerce Drive, Suite B			SESC PERMIT NUMBER OR APA STATUS 123-08	
CITY Marquette	STATE MI	ZIP 49855	ISSUE DATE 12/01/2008	

CERTIFICATION - Michigan regulations require this form be signed as follows:

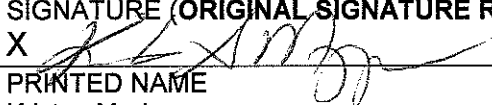
Corporation: a principal executive officer of at least the level of vice president, or his designated representative, if the representative is responsible for the overall operation of the facility from which the discharge described in this form originates.

Partnership: a general partner.

Sole Proprietorship: the proprietor.

Municipal, State, or other public facility: either a principal executive officer, the mayor, village president, city or village manager, or other duly authorized employee.

I certify that I have read R 323.2190 and that all provisions of R 323.2190 will be complied with and that all information contained in this NOC is, to the best of my knowledge and belief, true, accurate and complete. I acknowledge that any discharge that is authorized by this NOC shall be in compliance with Act 451, Part 31, and the rules promulgated thereunder. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment. I certify under penalty of law that I possess full authority on behalf of the legal landowner/permittee to sign and submit this NOC.

SIGNATURE (ORIGINAL SIGNATURE REQUIRED) X 	DATE March 8, 2011	TELEPHONE 906-486-1257 ext 229
PRINTED NAME Kristen Mariuzza	TITLE Environmental & Permitting Manager	

MAKE CHECK OR MONEY ORDER IN THE AMOUNT OF \$400 PAYABLE TO: STATE OF MICHIGAN

MAIL COMPLETED APPLICATION, LOCATION MAP, SESC PERMIT AND PLAN, ALONG WITH THE \$400 FEE TO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
CASHIERS OFFICE - WB-SW1
P O BOX 30657
LANSING, MI 48909-8157

ADDRESS FOR OVERNIGHT MAILING:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
CASHIERS OFFICE - WB-SW1
525 WEST ALLEGAN 5TH FLOOR SOUTH TOWER
LANSING, MI 48913

IF YOU HAVE ANY QUESTIONS ABOUT THE PREPARATION OF THIS FORM OR DON'T RECEIVE ACKNOWLEDGEMENT WITHIN 30 DAYS OF SUBMITTAL, CALL 517-335-4137 OR E-MAIL: PLOEHNK@MICHIGAN.GOV.

Soil Erosion Program

Marquette County Conservation District
780 Commerce Drive, Suite B, Marquette, MI 49855
Phone: (906) 362-2259 or 226-2461 Fax: (906) 228-4484
e-mail= hampton-waring@macd.org

Soil Erosion and Sedimentation Control Permit

Permit Number 123-08 Date Issued 12-01-08 Expiration Date 12-31-11

Name of Permittee: Kennecott Eagle Land, LLC- John C. Cherry, P.E.
Address: 594 Spruce St., Ishpeming, MI 49849
Telephone Number: 486-1257

Location of Project: Address: 4547 CR 601 REPUBLIC/M95
T 47n R 29w Sec. 29 Humboldt Twp

Permitted Earth Change Activity: [Commercial]

Excavation/fill (approx. 14 acres) necessary for demolition and remediation activities at the **Humboldt Mill Facility**.

Lake/Stream Near Site: n/a

Contact on-site: landowner
Telephone Number:

SPECIAL PERMIT CONDITIONS

1. As noted on application, silt fencing will be properly installed upon start of work between construction site and lake/stream to prevent sedimentation of waterway. Site visits may reveal the need for additional temporary or permanent erosion control measures.
2. Controls to remain until final grading and site restoration.
3. Heavy hay mulch cover to be used on all raw soils upon restoration.
4. Permittee shall notify the permitting agency within one week after completing the permitted activity or one week prior to the permit expiration date, whichever comes first.


Please post permit to aid in finding remote sites

123-08 continued

Issuance of this permit does not waive the need to obtain other local, state, or federal permits. Of particular importance are state MDEQ permits that cover work in or adjacent to lakes/streams [Part 301], wetlands [Part 303], and floodplains [Part 31]. Contact Michael Smolinski at 906-346-8562 for MDEQ permit information and applications.

This permit is issued under the provisions of Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, being Sections 9101 to 9123

The project shall be completed in accordance with Part 91 and the plans and specifications that are part of this permit (including special conditions and attached general construction/condition requirements.) A complete copy of this permit must be kept at the project site and available for review. For information regarding the issuance of this permit or the plans and specifications contact:

Issued by:  Hampton Waring
County Inspector—Soil Erosion Permits
Marquette County Conservation District
Telephone Number: 906-362-2259 or 226-2461

att: site plan & specifications

cc: Humboldt Township

Please post permit to aid in finding remote sites

Soil Erosion Program

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Phone: (906) 362-2259 or 226-2461 Fax: (906) 228-4484
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REPUBLIC/M95
Humboldt Twp

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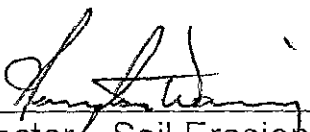
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Marquette County Conservation District
Telephone Number: 906-362-2259 or 226-2461

att: site plan & specifications

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Soil Erosion Program

Marquette County Conservation District
780 Commerce Drive, Suite B, Marquette, MI 49855
Phone: (906) 362-2259 or 226-2461 Fax: (906) 228-4484
e-mail= hampton-waring@macd.org

December 1, 2008

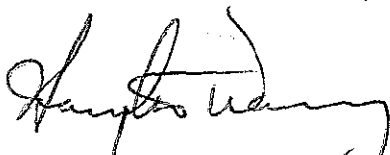
Kennecott Eagle Lands, LLC
John C. Cherry, P.E.
504 Spruce St.
Ishpeming, MI 49849

Mr. Cherry:

Enclosed please find Soil Erosion and Sedimentation Control (SESC) **Permit #123-08** for your Humboldt Mill Facility project. The information supplied with the application was for demolition and remediation at the site only. Please be advised that future site work associated with the processing facility or any other work at this location can be included in the permit by amendment if received before the expiration date. This will involve submitting another completed Part 91 Permit application for the proposed work. No further fees will be required if the additional work does not exceed the 14 acres covered under SESC Permit #123-08.

Also, please note that I have included a check (#2657) in the amount of \$300 as a refund for overpayment of the permit fee. The fee for 14 acres is \$325 for the first 10 acres (\$3250) and \$250 for the next 4 acres (\$2000) for a total of \$4250. On November 3, 2008, I received check #00028407 in the amount of \$4550 with your Part 91 application.

If you have any questions or comments regarding this correspondence, please do not hesitate to call or email me.



Hampton Waring
County Inspector—Soil Erosion Permits
Marquette County Conservation District

Enc. Receipt #001887 for Check #00028407
Refund check #2657 for \$300
SESC Permit #123-08

Kennecott Eagle Minerals
504 Spruce Street
Ishpeming, MI 49849
T 906-486-1257
F 906-486-1053

March 7, 2011

Certified Mail – Return Receipt Requested
7010 1670 0001 0273 7152

Michigan Department of Environmental Quality
Cashiers Office – WB-SW1
P.O. Box 30657
Lansing, MI 48909-8157

RE: Kennecott Eagle Land Humboldt Mill Notice of Coverage

Dear Sir/Madam,

Enclosed please find Kennecott Eagle Minerals Company check number 2563 in the amount of \$400.00 to cover the fee due in regards to the above referenced Notice of Coverage.

If you have any questions, please do not hesitate to call me at 906-486-1257 ext. 206.

Sincerely,

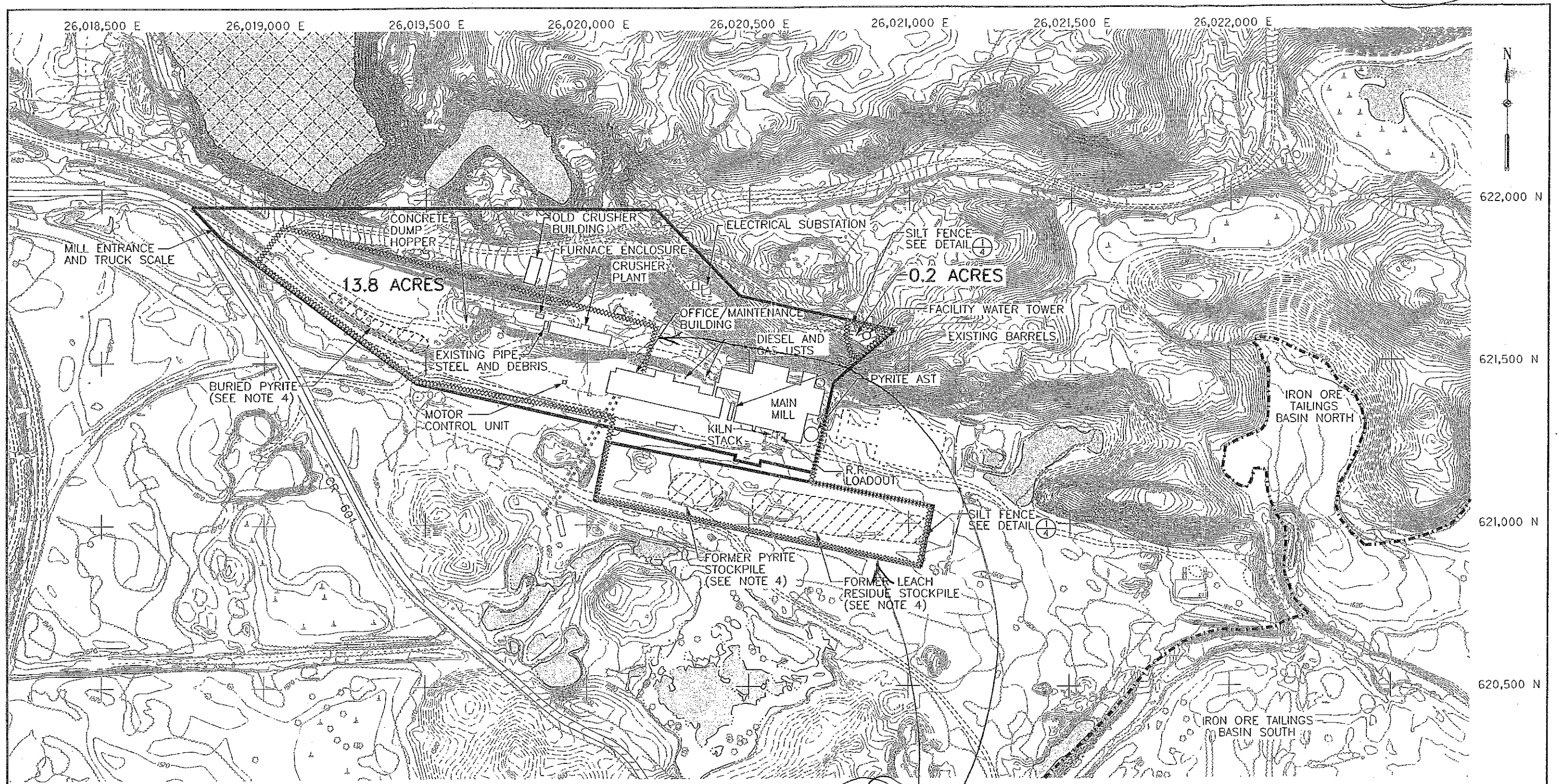
KENNECOTT EAGLE MINERALS COMPANY



Mary Morissette
Environmental Advisor

Enclosure(s)

123-00



LEGEND

- | | | | |
|--|--------------------------------|--|--|
| | EXISTING ELEV. CONTOUR IN FEET | | PONDED WATER |
| | SPOT ELEVATION | | HUMBOLDT TAILINGS DISPOSAL FACILITY |
| | TREE | | APPROXIMATE LIMITS OF PRE-EXISTING IRON ORE TAILINGS DISPOSAL FACILITY |
| | TREE LINE | | SILT FENCE |
| | BUILDING | | KEL PROPERTY OWNERSHIP |
| | TRAIL | | UNDERGROUND PIPING (LOCATION NOT CONFIRMED) |
| | PAVED ROAD | | |
| | UNPAVED ROAD | | |
| | STREAM/LAKE | | |

NOTES:

1. TOPOGRAPHIC AND PLANIMETRIC DATA SUPPLIED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: APRIL 27, 2005.
2. CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. HORIZONTAL DATUM BASED ON NAD 83/96. HORIZONTAL COORDINATES BASED ON MICHIGAN STATE PLANE.
3. SITE LOCATION - PROJECT SITE WITHIN SECTIONS 2 AND 11, T47N, R29W, HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN.
4. EXCAVATED AREAS WILL BE BACKFILLED WITH CLEAN MATERIALS TO THE ELEVATION OF THE EXISTING LOCATION. THIS AREA WILL BE VEGETATED, COVERED WITH GRAVEL OR ASPHALT AS PERMANENT EROSION CONTROL.
5. AREA OF DISTURBANCE IS APPROXIMATELY 14.0 ACRES.

SILT FENCE
REQUIRED
AS SHOWN
HW

Foth Infrastructure & Environment, LLC				Kennecott Eagle Land, LLC	
REVISED	DATE	BY	DESCRIPTION	FIGURE 3	
				PROPOSED ACTIVITIES	
CHECKED BY: AKM			DATE: SEPT. '08	Scale: 0 150' 300'	
APPROVED BY: JOSI			DATE: SEPT. '08	Date: SEPTEMBER, 2008	
APPROVED BY:			DATE: SEPT. '08	Prepared By: JOW	
				Project No. 06W003	

CONSTRUCTION REQUIREMENTS

1. Slope Stabilization:
 - A. Roof gutters/downspouts and/or ground surface protection shall be installed as needed to prevent erosion of the slopes beneath roof driplines and at roof/floor drain discharge points.
 - B. **All disturbed earth surfaces steeper than 3:1 and up to/including 2:1 (horz:vert) shall be restored with pegged sod or erosion control fabric/mats. All disturbed earth surfaces steeper than 2:1 (horz:vert) shall be restored with rock rip-rap or other pre-approved equivalent.**
 - C. No permanent slopes to be created steeper than 2:1 (horz:vert) unless pre-approved.
 - D. All areas on pre-existing slopes steeper than 2:1 (horz:vert) will be permanently stabilized with riprap or other pre-approved equivalent.
 - E. Slopes near retaining walls shall be constructed to convey surface runoff down the slope without causing erosion. Retaining walls constructed of timbers, ungrouted blocks or stones, etc., will be lined with geotextile fabric on the uphill face of the wall to prevent soil from exfiltrating through the wall.
 - F. All sod shall be entrenched such that the top of the sod is to the line and grade of the adjacent ground. The sod seams shall be staggered in the direction parallel to the flow of surface runoff.
 - G. All riprap will be underlain with filter fabric and be large enough not to be displaced during storm events—4-6" minimum is recommended. Front/sides to be trenched into sub-grade.
 - H. All earth changes are to be permanently stabilized with topsoil/seed/mulch to establish a good vegetative surface cover, unless areas are determined by MCCD to be fully self-contained.
 - I. Silt fence shall be properly installed as needed at the downhill perimeter of the exposed soil surfaces to prevent sediment damage to any lake/stream and keep all sediment on-site.
2. In all areas of concentrated water flow for a **25 year/24 hr. storm event**, the soil surfaces shall be armored with the appropriate surface cover material to permanently stabilize the flow line.
 - A. If the flow is between 4 and 6 feet per second, the disturbed earth surfaces shall be armored with pegged sod or erosion control fabric/mats. The sod shall extend a minimum of 1' above the normal depth of flow.
 - B. If the flow is greater than 6 feet per second, the disturbed earth surfaces shall be armored with riprap, pavement, or other pre-approved non-erodible surface. The armor shall extend a minimum of 1' above the normal depth of flow.
 - C. All flow lines with a continuous baseflow shall be permanently stabilized with riprap, pavement, or other pre-approved method (bioengineering is encouraged). The riprap, pavement, etc. shall extend a minimum of 1' above the normal depth of flow.
 - D. Check dams and/or ditch sediment traps shall be installed in flow lines as needed to trap sediment and prevent erosive water velocities.
3. Design, construct, and complete the earth change in a manner that limits the exposed area of disturbed land for the shortest period of time.
4. Install temporary soil erosion and sedimentation control measures before or upon commencement of the earth change activity and maintain the measures on a daily basis. Remove temporary soil erosion and sedimentation control measures after permanent soil erosion measures are in place and the area is stabilized. ("Stabilized" means the establishment of vegetation or the proper placement, grading, or covering of soil to ensure its resistance to soil erosion, sliding, or other earth movement.)
5. All disturbed earth surfaces that are not permanently stabilized with good vegetation or pavement prior to the winter months of each year will be protected with the temporary erosion/sediment controls necessary to prevent erosion into any lakes, streams, or drainage facilities during the winter months and the spring snowmelt/runoff period.
6. Permittee is responsible for the proper installation and timely maintenance of all erosion/sediment controls necessary to prevent erosion/sediment damage to any lake, stream, or drainage facility.
7. Complete permanent soil erosion control measures for the earth change within five calendar days after final grading or upon completion of the final earth change. If it is not possible to permanently stabilize the earth change, then maintain temporary soil erosion and sedimentation control measures until permanent soil erosion control measures are in place and the area is stabilized.
8. Sediment will be removed from runoff water before it leaves the site of the earth change.

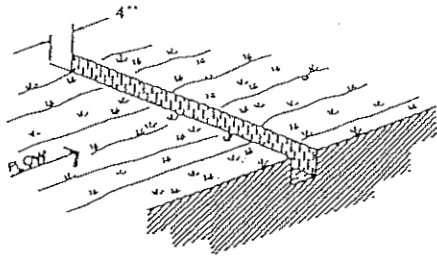
9. All flushing, dewatering, pumping, well development, etc., shall be done with no erosion/sediment damage to any lake, stream, or drainage facility. Temporary control measures will be installed prior to these operations to remove sediment and limit the water flow to a non-erosive velocity.
10. Temporary sediment controls shall be installed at all storm sewer and culvert inlets that are downgradient of any exposed soil or gravel surfaces that are a result of this project.
11. Any facility designed/constructed for the control or conveyance of water within, around, through, or from the earth change area will be designed/constructed to limit the flow of water to a non-erosive velocity.
12. Excavations and embankments shall be constructed with positive drainage and/or the drainage facilities necessary to prevent ponding of water and blockage of existing drainage patterns with the exception of constructed wetlands and those facilities specifically engineered for stormwater management. Provisions shall be made to safely convey stormwater runoff down cut and fill slopes to prevent soil erosion, sedimentation, and erosive water velocities.
13. Wind velocity reduction fences, dust control measures, and temporary and permanent stabilization measures shall be installed as necessary to protect disturbed earth surfaces from wind erosion.
14. Where subsurface water movement causes seeps, soil erosion, soil slippage, sloughing, caving, or other earth movement, the permittee shall install subsurface drainage facilities as necessary to prevent slope instability, soil erosion, and sedimentation.

GENERAL CONDITIONS

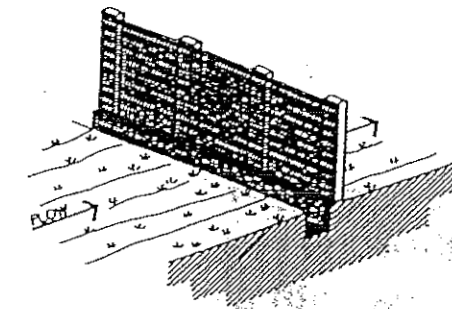
1. In issuing this permit, MCCD has relied on the information the permittee has provided in the permit application. Any changes to the current plan/permit must be submitted to MCCD for approval /inclusion in existing permit or a violation may be issued.
2. The permit shall be kept at the project site and available for inspection at all times during the project.
3. All work authorized by this permit will be done under the approved SESC plan and in compliance with all requirements of Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, Act No. 451 of PA of 1994, as amended, and the administrative rules.
4. The requirements of this permit will be enforced by the Marquette County Conservation District. In the event of failure to complete the work within the specified time period or failure to comply with all requirements of Part 91 of Act 451, and/or the Permit, the Conservation District may issue a notice of violation; issue a cease and desist order; seek injunctive relief; institute civil or criminal proceedings; order such work as necessary to eliminate any danger to persons or damage to property, lakes, streams, or drainage facilities; order the completion of work authorized by the permit; and/or may enter upon the land to construct, implement, and maintain soil erosion and sediment control measures, the cost of which shall be reimbursed to the Conservation District by the property owner.
5. The permit is permissive and its issuance does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of public or private rights, nor any infringement of federal, state, or local law or regulations, nor does it eliminate the necessity of obtaining such permits or approvals from other units of government as may be required by law. This permit is issued with the understanding that it does not prevent the Conservation District or the State of Michigan from the establishment of further requirements for control at any time.
6. The permittee shall immediately notify the Conservation District of any change in ownership.
7. The issuance of this permit shall not impose any liability upon the Marquette County Conservation District for damages to persons or property.
8. Permittee is responsible for requesting permit extension to cover project completion.
9. Upon a final site visit, the Conservation District will issue a Certification of Completion to close the permit out.

INSTALLING SILT FENCE

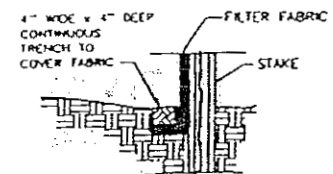
(Hay Bales can also be used if they are packed together tightly)



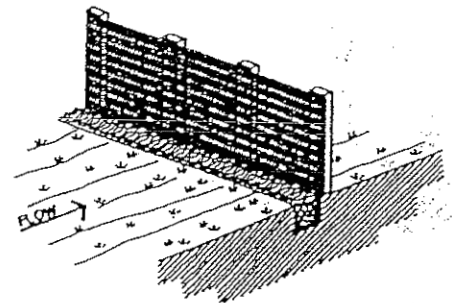
1. Dig a 4"x4" trench where fence will go.
Pile dirt in front of fence for use later.



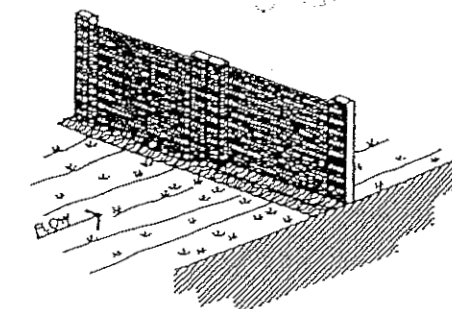
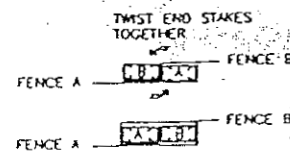
2. Pound fence stakes in the downslope side of trench.
Extend at least 8" of fabric into trench.
Arrange fabric to form an "L" as shown.



2. FLAT BOTTOM TRENCH
(TYPICAL)

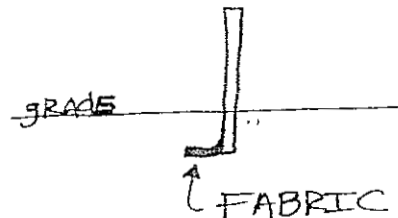
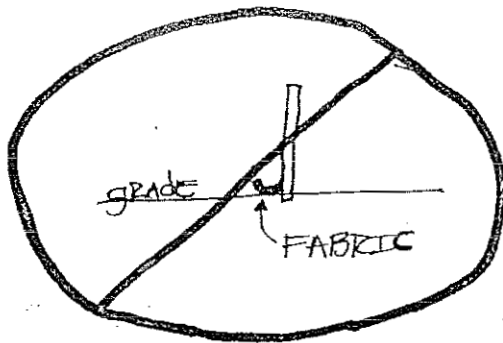


3. If joining sections, overlap ends and twist stakes together.

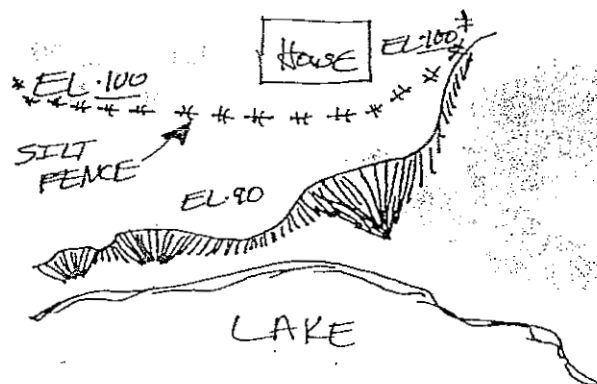
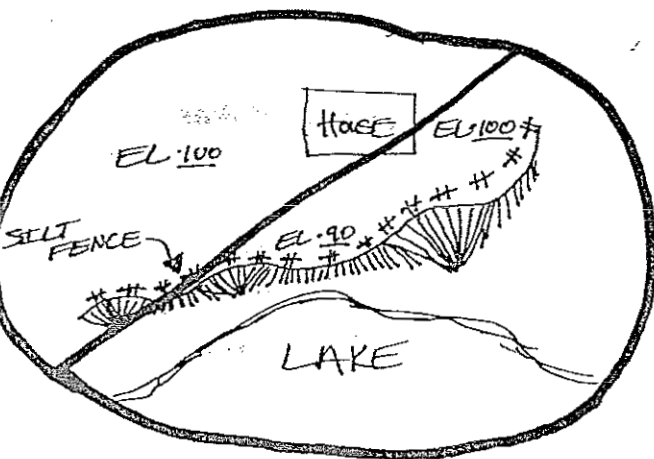


4. Backfill trench to grade and compact soil to form a barrier.

1. Do not let the fabric "flap in the breeze" or lay on top of the ground. It must be trenched in below the surface to work—otherwise it is the same as not putting it up at all.



2. Try to install fence along the same grade or contour so that the runoff force is spread evenly throughout the fence. Do not funnel runoff into one area with a silt fence.



3. Check fence after rainfall to repair any blowouts or clean out if almost full.

Soil Erosion Program

Marquette County Conservation District

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Erosion Control Ideas and Tricks To "Getting Good Grass"

1. Whenever possible, cover all raw soils with heavy seeding and a thick layer of hay mulch.
2. Use sod, crushed stone, or rock at roof drip edges to catch roof runoff. Underlay all stone/rock with filter fabric. Extend the sod/rock down the slope to a flat or wooded area.
3. Use silt fence or hay bales at your work area, especially to protect sloping land.
Trench them in below grade and backfill.
4. If you can't restore the entire site in one season, get seed/hay on any areas possible before winter [even if they are not to final grade].
5. Using a thick layer of hay mulch will help to keep your topsoil from eroding, minimize gully formation, and start a temporary vegetative cover.
6. Pay attention to your soil types—clay, sand, gravel, rock, etc. A gravel/rock slope next to a lake may not need much attention, but a raw clay slope would need to be seeded/mulched immediately.
7. If you see a sedimentation problem, trace it to the source and use an appropriate solution.
8. Keep as much area as you can undisturbed adjacent to the lake/stream—this "buffer" acts as a natural sediment control.
9. Work with your contractor/excavator to leave a berm along the edge of work area or to dig a sump to catch runoff.
10. Use berms to divert roof/yard runoff away from raw fill slopes. Raw slopes will never vegetate if they have constant erosion from water going down them.
11. Steep slopes will require sod, rock, or an erosion control "blanket" for stabilization.
12. In areas of concentrated runoff or where you see gullies, a sod or fabric round bottom "ditch" will need to be used to carry water through the area.

Erosion Control Measures Required for Projects Near a Lake/Stream

If your project is near a lake/stream, especially with a slope to the water, you are required as a permit condition to install and maintain erosion control measures upon the start of earthwork. If I am not able to visit your site before issuing the permit and instructing otherwise, please take note and install the following with your contractor/excavator:

MINIMUM—TRENCH [can be fronted with silt fence]:

Done most easily when your backhoe [bucket width] or dozer [blade up a trench and berm] is present, this is a 1' minimum below-grade trench along the entire edge of your water-facing work area.

In areas of light sand, this can also be done by hand [shovel width].

This trench is required to be cleaned out when 3/4 full and remain in place until final grade/restoration is completed. For sloping areas along the trench itself, a sediment sump [up to 5'x5'x4' deep] can be placed at the end to capture any erosion.

